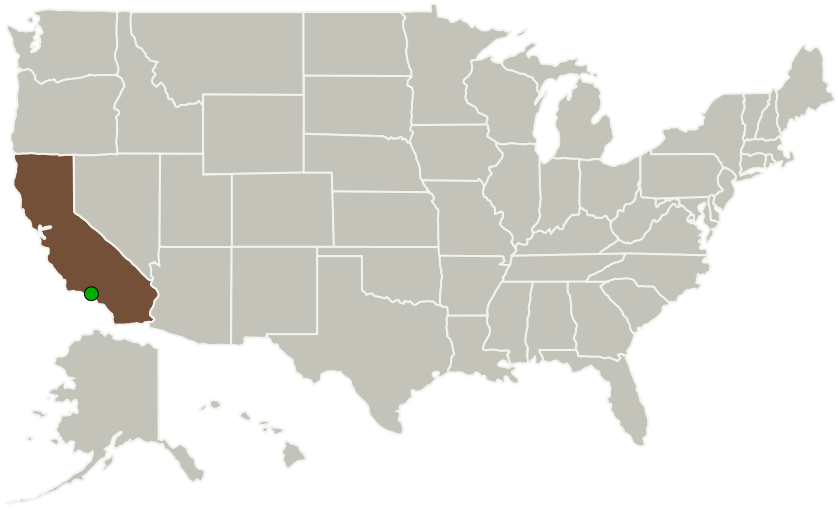
3D Flash LIDAR Space Laser, Phase I

Completed Technology Project (2012 - 2012)

Project Introduction

Advanced Scientific Concepts, Inc. (ASC) is a small business, which has developed a compact, eye-safe 3D Flash LIDARTM Camera (FLC) well suited for real-time spacecraft trajectory, speed, orientation measurements relative to the planet's surfaces and evaluating potential hazards during the critical landing sequence. Data collected using ASC's FLC at JPL's Mars Yard and in NASA ALHAT flight tests demonstrated that ASC Flash LIDAR system can meet the requirements for Entry Descent and Landing (EDL). Aboard the Space Shuttle Discovery(STS-133), SpaceX and ASC demonstrated the DragonEye Autonomous Rendezvous and Docking (AR&D) Flash LIDAR solution in low earth orbit, the first Flash LIDAR in space. ASC has developed the core technology for Flash LIDAR with its 3D-FPA hybrid and would like to work with NASA to further enhance the functionality of the 3D sensor by developing a space qualified laser for Flash LIDAR. ASC is proposing to investigate packaging approaches that will increase the hardness of the laser and will create a preliminary concept for improved power stability and thermal management for the complete sensor.

Primary U.S. Work Locations and Key Partners



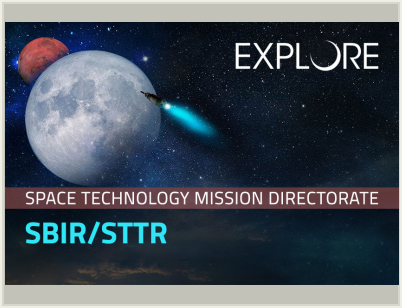


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Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Project Transitions	2
Organizational Responsibility	2
Project Management	2
Technology Maturity (TRL)	3
Technology Areas	3
Target Destinations	3

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Organizations Performing Work	Role	Type	Location
Advanced Scientific Concepts, Inc.	Lead Organization	Industry	Goleta, California
Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California

Primary U.S. Work Locations
California

Project Transitions

February 2012: Project Start

August 2012: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/140294)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Advanced Scientific Concepts, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Brad Short

Co-Investigator:

Bradley Short

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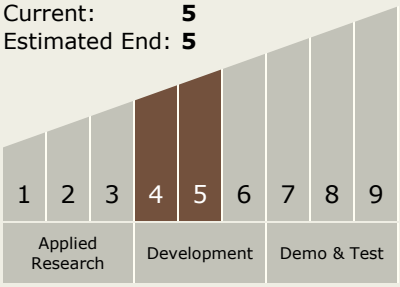
Technology Maturity (TRL)

Start: **4**
Current: **5**
Estimated End: **5**



Technology Areas

Primary:

- TX09 Entry, Descent, and Landing
  - TX09.4 Vehicle Systems
    - TX09.4.7 Guidance, Navigation and Control (GN&C) for EDL

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System